United Nations
Economic Commission for Europe

Food and Agriculture Organization
of the United Nations

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FOREST FIRE STATISTICS

1991-1993

UNITED NATIONS

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United Nations Economic Commission for Europe
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Timber Section, Agriculture and Timber Division
Geneva, Switzerland

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UNITED NATIONS
New York and Geneva, 1995

NOTE

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* *

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ABSTRACT

Forest fire Statistics 1991-1993 provides statistics on forest fires in the UN-ECE region, Europe, North America and the countries of the former USSR. Shown are the number and size of fires, their causes, their losses by volume and value, forest types and ownerships affected, and expenditures on prevention and control. Previous editions were published under the ECE/TIM series, beginning with the present issue, and henceforth, they will be part of the *Timber Bulletin*.

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FOREST FIRE STATISTICS 1991-1993

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PREFACE

The present document contains the results of the eighth enquiry on forest fire statistics [1/], carried out in 1994 by the Joint FAO/ECE Working Party on Forest Economics and Statistics, with the approval of its parent bodies, the ECE Timber Committee and the FAO European Forestry Commission.

The previous edition of Forest Fire Statistics covered the period 1990-1992 [2/]. The present publication extends the coverage of Forest Fire Statistics officially collected by FAO/ECE, to the year 1993. Since the second edition, the form of enquiry has been kept unchanged. It was decided at the seventeenth session of the Working Party that henceforth these enquiries should be carried out on an annual basis.

Thirty four countries replied to the enquiry. Of this number, Denmark, Hungary and Sweden have discontinued the collection of forest fire statistics, Sweden has nevertheless provided estimates for the fire season of 1993. Tables 1 and 2 summarize the data for the years 1982 to 1993, while the remainder give the information for the years covered by the latest enquiry (1991 to 1993), in most cases 1993 data should be treated as provisional. Not all the countries were able to reply fully to the enquiry. The information presented in this document can nevertheless be said to provide a reasonable coverage of forest fires in Europe, as the great majority of fires occur in the Mediterranean region, for which most of the data were available. The data for North America and the countries of the former USSR also provide a good coverage of the forest fire situation.

The information contained herein is obtained mainly from official national sources, to which the secretariat expresses its appreciation for the work entailed in preparing replies to the enquiry. Nevertheless the present document is published on the responsibility of the secretariat.

FAO/ECE continues to publish on a twice-yearly basis another publication on forest fires. It is entitled "International Forest Fire News" and is a collection of information, in newsletter style, of recent and coming events, meetings, publications, etc. concerned with forest fire. Copies of the IFFN may be obtained, free of charge, from:

Timber Section
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Switzerland

FAX +41 22 917 0041

* *

Symbols used

m3	cubic metre, solid volume
ha	hectare
-	nil
0	negligible
.	not applicable
...	not available
*	unofficial figure or secretariat estimate

* *

1/ Supplement 10 to volume XXXIV of the "Timber Bulletin for Europe", January 1982; Supplement 7 to volume XXXVI of the Timber Bulletin for Europe", February 1984; ECE/TIM/32, 1986; ECE/TIM/41, 1988; ECE/TIM/51, 1990; ECE/TIM/58, 1992; and ECE/TIM/70, 1993.

2/ Albania, Austria, Azerbaijan, Belarus, Belgium, Bulgaria, Canada, Croatia, Cyprus, Czech Rep., Estonia, Finland, France, Germany, Hungary, Ireland, Italy, Lithuania, Luxembourg, Malta, Moldova, Norway, Poland, Portugal, Romania, the Russian Federation, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, the United Kingdom and the United States of America.

Table 1

Total number of fires on forest and other land

(Number)

Country	*1982*	*1983*	*1984*	*1985*	*1986*	*1987*	*1988*	*1989*	*1990*	*1991*	*1992*	*1993*
Albania	35	96	192	71	134	102	121	70	269	147	695	560
Austria	156	235	228	152	138	98	124	88	225	78	165	178
Belgium	38	107	140	39	79	46	24	103	82	65	26	36
Bulgaria	73 *	104	47	165	68	76	140	63	208	73	602	1196
Cyprus	97	55	76	74	50	62	86	66	64	47	18	16
former Czechoslovakia	203 *	699	558	295	552	249	515	452	1254	.	.	.
– Czech Rep	.	.	.	.	.	.	.	.	.	961	2586	1951
– Slovakia	.	.	.	.	.	.	.	.	.	...	...	...
Denmark	13	18	17	6	10	11 *	11 *	11 *	2	–	2	1 *
Finland	504	271	464	502	717	285	621	617	571	287	852	286 *
France	5308	4659	5672	6249	4353	3043	2837	6743	5881	3888	4008	5850
Germany	1853	1718	1772	1131	1227	1093	1168	1415	1610	1846	3012	1694
Greece	1045	968	1284	1442	1082	1266	1898	1284	1322	858	2582	2546
Hungary	162	220	402	200	576	393 *	393 *	393 *	393 *	393 *	393 *	393 *
Ireland a/	755	316	1194	478	490	721 *	721 *	721 *	721 *	194	156	123
Israel	1117	1233	908	834	577	1035	1354	1024	1133	1170 *	1170 *	1170 *
Italy	9557	7956	8482	18664	9388	11972	13558	9669	14477	11965	14545	13380
Luxembourg	9	13	10	10	5	5	1	–	23	11	8	7
Netherlands	213	127	168	75	120	90	79	118	95	117	76	96 *
Norway	628	354	495	329	301	286	448	390	578	976	892	253
Poland	3798	3335	3043	1498	2766	1222	2781	4100	4137	3008	9305	4421
Portugal	3567	4503	6377	7218	4348	6977	5643	20155	18507	13118	16983	16087
Romania	59	60	52 *	52 *	52 *	52 *	18	43	134	44	182	120 *
Spain	6443	4880	7224	12284	7574	8679	9595	20384	12474	13011	15895	14241
Sweden b/	...	...	...	...	...	...	...	...	...	...	...	...
Switzerland	98	106	146	116	76	70	55	150	216	157	111	99
Turkey	951	968	1433	1793	1526	1310	1367	1633	1725	1445	2110	2547
United Kingdom c/	993	492	1288	623	302	149	299	98	412	475	328 *	328 *
former Yugoslavia, d/	1063	1080	729	1514	501	746	668	408	1327	.	.	.
– Croatia	.	.	.	.	.	.	.	.	.	218	325	372
– Slovenia	.	.	.	.	.	.	.	.	.	66	113	211
EUROPE	***38816***	***34650***	***42478***	***55891***	***37089***	***40115***	***44602***	***70275***	***67917***	***54695***	***77217***	***68239***
former USSR	13165	10141	12953	10200	13296	11304	16432	18751	17672	.	.	.
Azerbaijan	.	.	.	.	.	.	.	.	.	6	1	8
Belarus	.	.	.	.	.	.	.	.	.	1517	7743	1887
Estonia	.	.	.	.	.	.	.	.	.	39	348	207
Lithuania	.	.	.	.	.	.	.	.	.	147	1180	634
Moldova	.	.	.	.	.	.	.	.	.	18	14	1
Russian Federation	.	.	.	.	.	.	.	.	.	17965	25777	18428
Ukraine	.	.	.	.	.	.	.	.	.	2771	5869	2967
TOTAL	***13165***	***10141***	***12953***	***10200***	***13296***	***11304***	***16432***	***18751***	***17672***	***22463***	***40932***	***24132***
Canada	8941	8930	9568	9357	7087	11304	10741	12185	10111	10334	9069	5846
United States e/	101650	95169	181466	138521	138696	147146	153662	121226	119818	118796 *	176536 *	153023 *
NORTH AMERICA	***110591***	***104099***	***191034***	***147878***	***145783***	***158450***	***164403***	***133411***	***129929***	***129130***	***185605***	***158869***

a/ Ireland: State forests only

b/ Sweden: the collection of forest fire statistics was discontinued in 1980. Data for 1992 and 1993 are based on estimates (applies also to other tables)

c/ United Kingdom: State forests only. Periods reported are financial years running from April to March of the following year

d/ Yugoslavia: data provided by Yugoslavia prior to 1 January 1992 refer to the Socialist Federal Republic of Yugoslavia which was composed of six republics (applies also to data in other tables)

e/ United States: protected land only (applies also to data in other tables)

Table 2

Total area burned on forest and other land

(Hectares)

Country	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Albania	46	47	266	90	285	390	156	118	417	250	1011	522
Austria	98	190	304	83	99	53	87	52	200	53	95	93
Belgium	95	115	159	67	103	46	22	687	20	54	16	107
Bulgaria	177 *	132	103	1382	354	508	544	223	1041	511	5243	18164
Cyprus	7512	3718	3771	4965	1749	1550	4083	1485	1452	108	9	69
former Czechoslovakia	380 *	492	565	170	727	265	387	250	976	.	.	.
– Czech Rep	.	.	.	.	.	.	.	.	.	76	1278	1155
– Slovakia	.	.	.	.	.	.	.	.	.	...	...	...
Denmark	12	7	16	136	6	53 *	53 *	53 *	137	–	277	138 *
Finland	513	100	301	238	367	153	289	516	433	226	1082	580 *
France	55145	53729	27202	57368	51860	14108	6701	75566	72625	10130	16607	17113
Germany	1217	1258	1341	708	759	785	748	747	947	920	4908	1493
Greece	27372	19613	33655	105450	24514	46315	110501	42363	38594	13046	71410	48800
Hungary	248	696	1467	770	1810	1349 *	1349 *	1349 *	1349 *	1349 *	1349 *	1349 *
Ireland a/	645	170	1450	356	713	2519 *	2519 *	2519 *	2519 *	667	569	540
Israel	3441	4788	1740	1476	671	3782	14615	6315	5850	8927 *	8927 *	8927 *
Italy	130239	223728	78326	189898	86420	120697	186405	95161	195319	99860	109470	191396
Luxembourg	3	6	8	4	2	2	–	3 *	9	4	2	3
Netherlands	685	399	212	34	279	115	80	99	224	414	174	271 *
Norway	799	163	2846	244	595	335	215	992	87	530	1370	224
Poland	5752	4147	5641	1659	3382	1454	3063	5086	5029	2110	33334	3677
Portugal	39557	47812	52713	146255	99522	76268	22435	126235	129839	182486	46015	49930
Romania	302	146	172 *	172 *	172 *	172 *	15	101	456	277	709	481 *
Spain	151644	117599	164546	486327	277071	145793	127955	410181	204043	244706	104592	89267
Sweden b/	...	...	...	...	...	...	...	...	...	...	5808	1000
Switzerland	359	464	320	213	63	312	183	213	1102	148	52	42
Turkey	4018	3556	7358	26006	11037	10746	17032	12348	13000	7642	12312	13734
United Kingdom c/	639	143	1730	568	122	61	106	312	464	114	194	123
former Yugoslavia d/	19358	20585	10314	42791	8973	14183	14896	6394	25300	...	...	...
– Croatia	.	.	.	.	.	.	.	.	.	4535	11131	20164
– Slovenia	.	.	.	.	.	.	.	.	.	713	530	1863
EUROPE	***450673***	***504220***	***396944***	***1067847***	***572073***	***442431***	***514856***	***789785***	***701848***	***580272***	***438472***	***471224***
former USSR	463400	235300	491500	684800	1091300	1217700	959500	1831000	1669911	.	.	.
Azerbaijan	.	.	.	.	.	.	.	.	.	60	28	28
Belarus	.	.	.	.	.	.	.	.	.	319	23822	1618
Estonia	.	.	.	.	.	.	.	.	.	58	1787	647
Lithuania	.	.	.	.	.	.	.	.	.	54	971	304
Moldova	.	.	.	.	.	.	.	.	.	20	22	2
Russian Federation	.	.	.	.	.	.	.	.	.	1126222	1142775	1200435
Ukraine	.	.	.	.	.	.	.	.	.	1781	4252	3214
TOTAL	***463400***	***235300***	***491500***	***684800***	***1091300***	***1217700***	***959500***	***1831000***	***1669911***	***1128514***	***1173657***	***1206248***
Canada	1697591	1194175	765382	757260	950123	1085629	1336070	7559570	930918	1566910	868763	1967388
United States e/	579545	793500	1229887	2125529	1291448	2017058	2994227	1320972	2207470	1114464 *	1283338 *	1831195 *
NORTH AMERICA	***2277136***	***1987675***	***1995269***	***2882789***	***2241571***	***3102687***	***4330297***	***8880542***	***3138388***	***2681374***	***2152101***	***3798583***

a/ Ireland: State forests only
b/ Sweden: the collection of forest fire statistics was discontinued in 1980. Data for 1992 and 1993 are based on estimates (applies also to other tables)
c/ United Kingdom: State forests only. Periods reported are financial years running from April to March of the following year
d/ Yugoslavia: data provided by Yugoslavia prior to 1 January 1992 refer to the Socialist Federal Republic of Yugoslavia which was composed of six republics (applies also to data in other tables)
e/ United States: protected land only (applies also to data in other tables)

Table 3
Area burned by type of land
(Hectares)

Country	Total			Forest and other wooded land						Other land		
				Total			of which, high forest					
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Albania	250	1011	522	250	1011	522	250	1011	522	...	...	...
Austria	53	95	93	53	95	93	...	...	...	...	...	...
Azerbaijan	60	28	28	60	28	28	60	28	28	...	...	...
Belarus	319	23822	1618	310	18551	1253	...	...	...	9	5271	365
Belgium	54	16	107	19	16	11	13	15	9	35	–	96
Bulgaria	511	5243	18164	511	5243	18164	471	4154	10147	...	...	...
Croatia	4535	11131	20164	3173	6624	14109	814	1699	3624	1362	4507	6055
Cyprus	108	9	69	27	9	69	...	...	...	81	...	...
Czech Rep	76	1278	1155	76	1278	1155	76	1278	1155	...	...	...
Denmark	–	277	...	–	67	...	–	67	...	–	210	...
Estonia	58	1787	647	40	1129	423	28	782	128	18	658	224
Finland	226	1082	...	226	1082	...	226	1082	...	...	...	...
France	10130	16607	17113	...	...	...	...	...	...	...	...	...
Germany	920	4908	1493	920	4908	1493	920	4908	1493	...	...	...
Greece	13046	71410	48800	13046	49555	48800	13046	49555	48800	...	21855	...
Ireland	667	569	540	279	152	63	277	148	54	388	417	477
Italy	99860	109470	191396	24630	39659	104385	9214	12113	43990	75230	69811	69811
Lithuania	54	971	304	43	769	274	43	769	274	11	202	30
Luxembourg	4	2	3	4	2	3	2	2	2	...	...	...
Moldova	20	22	2	20	18	2	–	–	–	–	4	–
Netherlands	414	174	...	33	21	...	33	21	...	381	153	...
Norway	530	1370	224	530	1370	224	530	1370	224	...	...	...
Poland	2110	33334	3677	2110	33334	3677	2110	33334	3677	...	...	...
Portugal	182486	46015	49930	174131	46015	49930	98774	30171	21782	8355	...	...
Romania	277	709	...	277	709	...	277	709	...	...	...	...
Russian Federation	1126222	1142775	1200435	1126222	1142775	1200435	682049	691478	748619	...	...	...
Slovenia	713	530	1863	658	420	1453	296	195	323	55	110	410
Spain	244706	104592	89267	217284	99429	83828	109880	39961	33388	27422	5163	5439
Sweden	...	5808	1000	...	5808	...	...	3251	...	...	...	...
Switzerland	148	52	42	148	52	42	148	52	42	...	...	...
Turkey	7642	12312	13734	7642	12312	13734	5231	7951	9520	...	...	...
Ukraine	1781	4252	3214	1717	4101	3178	1717	4101	3178	64	151	36
United Kingdom	114	194	123	114	194	123	114	194	123	...	...	...
Canada	1566910	868763	1967388	1565686	868763	1967388	1565686	868763	1967388	1224	...	...
United States	1114464	1283338	1831195	...	...	...	...	...	...	...	...	...

Table 4
Forest area burned by type of land
(Hectares)

Country	Forest and other wooded land											
	High forest						Coppice and coppice with standards			Other wooded land		
	Coniferous			Broadleaved								
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Azerbaijan	–	–	–	60	28	28	...	...	...	...	...	...
Belgium	11	15	5	2	1	3	5	0	3	–	–	–
Bulgaria	129	2611	6956	342	1543	3191	–	810	7401	40	279	616
Croatia	700	1461	3119	114	238	505	1030	2150	4578	1329	2775	5907
* Czech Rep	76	1278	1155	.	.	.	...	...	...	...	...	...
* Denmark	–	67	...	–	.	.	–	...	...	...	...	...
Estonia	25	726	111	3	56	17	8	243	176	4	104	119
* Finland	226	1082	...	.	.	...	–	–	...	–	–	...
Germany	920	3864	1214	.	1044	279	–	...	...	–	...	...
Ireland	275	148	54	2	–	–	...	...	...	1	4	9
Italy a/	5780	6808	23171	3434	5305	20249	15416	27546	50828	–	–	9567
* Lithuania	43	769	274	.	.	.	...	...	...	...	...	...
Luxembourg	1	1	...	0	1	...	3	0	2	...	...	...
Moldova	–	–	–	–	–	–	20	18	2	...	...	...
Netherlands	31	19	...	2	2	...	–	–	...	–	–	...
* Norway	530	1370	224	...	...	...	...	...	...	...	...	...
Portugal	92920	30171	18574	5854	...	3208	21603	...	2030	53754	15844	26118
Romania	166	426	...	111	283	...	–	–	...	–	–	...
* Russian Federation	682049	691478	748619	.	.	.	.	.	.	444173	451297	451816
Slovenia	107	53	190	4	2	8	59	64	725	304	161	405
Spain	68821	25045	25539	41059	14916	7849	...	...	...	107404	59468	50440
Sweden	...	3251	...	...	.	...	...	–	...	...	2287	...
* Switzerland	148	52	42	.	.	.	...	...	...	...	...	...
* Turkey	5231	7951	9520	.	.	.	75	12	808	2336	4349	3406
* Ukraine	1717	4101	3178	...	...	...	...	...	...	...	...	...
* United Kingdom	114	194	123	...	...	...	–	...	...	–	...	...
Canada	1565686	868763	1967388	...	...	...	...	...	...	...	...	...

a/ Italy: "Coniferous" includes mixed forests, 1991 1014 ha; 1992: 1823 ha; 1993: 7964 ha.
* "Coniferous" includes broadleaved high forest

Table 5

Area burned by type of ownership

(Hectares)

Country	Total			Forest and other wooded land			Other wooded land		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
					Publicly owned				
* Azerbaijan	60	28	28	60	28	28	...	...	...
Belgium	42	7	60	11	7	7	31	–	52
* Bulgaria	511	5243	18164	511	5243	18164	–	–	–
Croatia	3153	8821	9683	2180	5311	6673	973	3510	3010
Cyprus	27	9	69	27	9	69	–	–	–
* Czech Rep	–	–	–	...	...	...	...	...	...
* Denmark	–	277	...	–	67	...	–	210	...
* Estonia	58	1787	647	40	1129	423	18	658	224
Germany	...	4140	846	...	4140	846	–	...	...
Ireland	374	252	143	279	152	63	95	100	80
Italy	21551	44883	81257	7343	...	...	14208	...	...
* Lithuania	54	971	304	43	769	274	11	202	30
Luxembourg	4	2	2	4	2	2	...	...	...
* Moldova	20	22	2	20	18	2	–	4	–
Netherlands	342	123	...	17	3	...	325	120	...
* Poland	2110	33334	3677	2110	33334	3677	–	–	–
Portugal	10664	...	...	10664	...	...	–	...	...
* Romania	277	709	...	277	709	...	–	–	...
* Russian Federation	1126222	1142775	1200435	682049	691478	748619	444173	451297	451816
Slovenia	302	172	822	250	116	668	52	56	155
Spain	98255	48006	40822	94483	45748	39682	3772	2258	1140
* Turkey	7642	12312	13734	7642	12312	13734	–	–	–
* Ukraine	1781	4252	3214	1717	4101	3178	64	151	36
* United Kingdom	114	194	123	114	194	123	–	...	...
					Privately owned				
Belgium	12	8	48	8	8	4	4	–	44
Croatia	1382	2310	10481	993	1313	7436	389	997	3045
Cyprus	81	...	...	–	–	–	81	...	...
Germany	...	768	647	...	768	647	–	...	...
Ireland	293	317	397	–	–	–	293	317	397
Italy	78309	64587	110139	17287	...	...	61022	...	...
Luxembourg	1	0	1	1	0	1	...	...	...
Netherlands	72	51	...	13	17	...	59	34	...
Portugal	171822	–	–	163467	...	...	8355	...	...
Slovenia	411	358	1041	408	290	793	3	68	248
Spain	146451	56586	48445	122801	53681	44146	23650	2905	4299

* Counries having reported area burned exclusively in public land

Table 6

Number of fires by known and unknown causes

(Number)

Country	Total			Known causes			Unknown causes		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
Austria	78	...	...	67	...	...	11	...	...
Belarus	1517	7743	1887	1468	5458	997	49	2285	890
Belgium	65	26	36	48	19	24	17	7	12
Bulgaria	73	602	1196	34	308	423	39	294	773
Croatia	218	325	372	158	180	303	60	145	69
Cyprus	47	18	16	28	12	12	19	6	4
Denmark	–	2	...	–	1	...	–	1	...
Estonia	39	348	207	34	327	153	5	21	54
Finland	287	852	...	263	730	–	24	122	...
France	...	4008	...	–	406	–	...	3602	...
Germany	1846	3012	1694	1199	1779	1042	647	1233	652
Ireland	194	156	123	134	127	94	60	29	29
Italy a/	6025	7708	11932	5321	6922	10628	704	786	1304
Lithuania	147	1180	634	146	1180	608	1	–	26
Luxembourg	11	8	7	8	6	4	3	2	3
Moldova	18	14	1	18	14	1	–	–	–
Netherlands	117	76	...	58	42	...	59	34	...
Norway	976	892	253	602	525	159	374	367	94
Poland	3008	9305	4421	2242	6665	3124	766	2640	1297
Portugal	13118	...	...	82	–	–	13036	...	...
Romania	44	182	...	37	128	...	7	54	...
Russian Federation	17965	25777	18428	17449	25396	17742	516	381	686
Slovenia	66	113	211	47	68	133	19	45	78
Spain	13011	15895	14241	7650	11888	11181	5361	4007	3060
Switzerland	157	111	99	114	84	72	43	27	27
Turkey	1445	2110	2547	772	1053	1310	673	1057	1237
Ukraine	2771	5869	2967	2771	5869	2966	–	–	–
Canada	10334	9069	5846	10055	8740	5710	279	329	136

a/ Italy: number of fires on forests only (excluding "other land")

Table 7
Number of fires by known causes
(Number)

Country	Human causes									Natural causes		
	Total,			of which: Arson			Negligence			Total		
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Austria	57	...	...	3	...	...	54	...	...	10	...	...
Belarus	1468	5444	995	–	–	–	1468	5444	995	–	14	2
Belgium	44	19	24	7	5	2	37	14	22	4	–	–
Bulgaria	32	306	413	5	14	55	27	292	358	2	2	10
Croatia	154	176	282	75	74	165	79	102	117	4	4	21
Cyprus	26	6	11	–	–	1	26	6	10	2	6	1
Estonia	34	323	147	4	59	9	30	264	138	–	4	6
Finland	221	480	...	17	48	...	204	432	...	42	250	...
France	...	388	...	...	121	...	...	267	...	...	18	...
Germany	1188	1646	963	460	550	385	728	1096	578	11	133	79
Ireland	134	127	94	1	3	2	133	124	92	...	...	...
Italy a/	5267	6885	9940	3751	4950	7636	1516	1935	2304	54	37	688
Lithuania	144	1171	605	4	123	37	140	1048	568	2	9	3
Luxembourg	8	6	4	1	1	–	7	5	4	–	–	–
Moldova	18	14	1	–	–	–	18	14	1	–	–	–
Netherlands	57	40	...	33	20	...	24	20	...	1	2	...
Norway	101	79	36	34	8	14	67	71	22	501	446	123
Poland	2234	6576	3035	591	2218	1154	1643	4358	1881	8	89	89
Portugal	71	...	...	13	...	...	58	...	...	11	...	...
Romania	37	125	...	11	12	...	26	113	...	–	3	...
Russian Federation	13829	22873	14938	–	–	–	13829	22873	14938	3620	2523	2804
Slovenia	43	56	117	1	2	20	42	54	97	4	12	16
Spain	6843	11098	10559	4957	8473	8036	1886	2625	2523	807	790	622
Switzerland	86	75	64	9	7	9	77	68	55	28	9	8
Turkey	737	997	1270	330	430	541	407	567	729	35	56	40
Ukraine	2767	5862	2964	–	–	–	2767	5862	2964	4	7	2
Canada	5904	4719	3481	806	636	460	5098	4083	3021	4151	4021	2229

a/ Italy: number of fires on forests only (excluding "other land")

Table 8

Number of fires caused by negligence

(Number)

Country	Agricultural operations			Logging and forest operations (including prescribed burning)			Other industrial activities		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
Belarus	153	746	112	11	20	16	–	–	–
Belgium	...	...	–	...	...	14	...	...	–
Croatia	49	45	52	...	...	...	...	...	...
Cyprus	13	–	2	2	–	–	–	–	–
Estonia	4	23	23	–	–	5	–	–	–
France	...	82	...	...	86	...	...	–	...
Germany	...	38	2	...	54	75	...	16	6
Ireland	84	95	72	...	...	...	4	5	7
Italy	371	396	578	30	42	38	2	5	5
Lithuania	5	31	53	–	–	12	–	–	7
Poland	261	485	196	17	14	17	–	–	–
Portugal	6	...	...	–	...	...	–	...	...
Romania	8	35	...	–	1	...	–	2	...
Russian Federation	1441	1204	1094	274	377	219	990	643	47
Slovenia	24	31	37	1	7	24	2	1	–
Spain	581	1015	816	158	402	272	72	50	74
Switzerland	12	10	3	15	11	6	6	3	7
Ukraine	36	147	53	14	22	5	27	67	18
Canada	1448	1317	1114	316	262	243	406	320	248

Country	Communications			General public			Other		
Belarus	16	312	33	1288	4366	834	–	–	–
Belgium	...	...	–	...	...	7	...	...	1
Croatia	...	...	...	...	...	...	40	57	65
Cyprus	1	–	–	3	–	6	7	6	2
Estonia	1	17	17	21	218	91	4	6	2
France	...	–	...	...	59	...	...	40	...
Germany	...	120	56	...	275	238	...	447	140
Ireland	...	...	...	45	24	13	...	...	...
Italy	3	3	7	38	46	42	1072	1443	1634
Lithuania	10	12	15	121	1003	470	4	2	11
Moldova	–	–	–	18	14	1	–	–	–
Netherlands	–	–	...	15	14	...	9	6	...
Poland	121	396	176	1205	3298	1422	39	165	70
Portugal	1	...	...	–	...	...	51	...	...
Romania	–	–	...	16	70	...	2	5	...
Russian Federation	...	...	568	11083	20608	13010	41	41	...
Slovenia	5	6	21	5	6	13	5	3	2
Spain	113	145	177	228	325	360	734	688	824
Switzerland	5	3	4	37	39	31	2	2	4
Turkey	11	3	–	25	38	60	371	526	669
Ukraine	–	–	–	2690	5626	2888	–	–	–
Canada	237	169	92	1680	1248	829	1011	767	495

Table 9

Area of fires by known and unknown causes

(Hectares)

Country	Total			Known causes			Unknown causes		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
Belgium	...	...	107	...	...	43	...	...	64
Bulgaria	511	5243	18164	378	1647	7164	133	3596	11000
Croatia	4535	11131	20164	3287	6165	16416	1248	4966	3748
Cyprus	108	9	69	51	3	68	57	6	1
Denmark	–	277	...	–	127	...	–	150	...
Estonia	58	1787	647	43	1324	505	15	463	142
Finland	226	1082	...	198	895	...	28	187	...
Germany	920	4908	1493	685	3229	753	235	1679	740
Ireland	667	569	540	297	448	398	369	121	142
Italy a/	24630	39659	104385	22666	36072	95432	1964	3587	8953
Lithuania	...	...	304	...	...	288	...	...	16
Luxembourg	4	2	3	4	1	2	1	1	2
Moldova	20	22	2	20	22	2	–	–	–
Netherlands	414	174	...	286	129	...	128	45	...
Norway	530	1370	224	304	258	162	226	1112	62
Poland	2110	33334	3677	1598	24725	2641	512	8609	1036
Portugal	182486	...	...	8323	...	...	174163	...	...
Romania	277	709	...	255	520	...	21	188	...
Slovenia	713	530	1863	515	205	1070	199	325	793
Spain	244706	104592	89267	185069	73892	74111	59637	30700	15156
Switzerland	148	52	42	102	27	31	46	24	11
Turkey	7642	12312	13734	4895	6618	9157	2747	5694	4577
Canada	1566910	868763	1967388	1566194	864960	1966970	716	3803	418

a/ Italy: area of fires on forests only (excluding "other land")

Table 10

Area of fires by known causes

(Hectares)

Country	Human causes									Natural causes		
	Total,			of which:						Total		
				Arson			Negligence					
	1991	1992	1993	1991	1992	1993	1991	1992	1993	1991	1992	1993
Belgium	...	...	43	...	...	0	...	...	43	...	...	–
Bulgaria	376	1644	7080	152	204	1410	224	1440	5670	2	3	84
Croatia	3204	6028	15279	1560	2534	8940	1644	3494	6339	83	137	1137
Cyprus	49	3	68	–	–	22	49	3	46	2	–	–
Denmark	–	–	...	–	–	...	–	–	...	–	127	...
Estonia	43	1321	486	4	154	14	39	1167	472	–	3	19
Finland	179	471	...	3	38	...	176	433	...	19	424	...
Germany	681	2263	741	127	309	178	554	1953	563	4	966	...
Ireland	297	448	398	2	21	3	295	427	395	...	...	...
Italy a/	22422	35720	91703	17953	27950	77328	4469	7770	14375	244	352	3729
Lithuania	...	...	287	...	...	54	...	...	233	...	...	1
Luxembourg	4	1	2	2	0	–	2	1	2	–	–	–
Moldova	20	22	2	–	–	–	20	22	2	–	–	–
Netherlands	250	128	...	157	45	...	93	83	...	36	1	...
Norway	304	146	151	4	1	18	300	145	133	–	112	11
Poland	1587	24687	2623	540	4136	1420	1047	20550	1204	11	38	17
Portugal	7517	...	...	1547	...	...	5970	...	...	806	...	...
Romania	255	511	...	114	54	...	141	457	...	–	9	...
Slovenia	475	141	1035	1	8	226	474	133	809	40	64	35
Spain	146088	71194	67976	123315	48402	42063	22773	22792	25913	38981	2698	6135
Switzerland	87	25	30	45	1	3	42	24	27	15	2	1
Turkey	4836	6564	9052	2013	3626	3476	2823	2938	5576	59	54	105
Canada	311700	157196	169241	8617	8797	3321	303083	148399	165920	1254494	707764	1797729

a/ Italy: area of fires on forests only ("excluding other land")

Table 11

Area of fires caused by negligence

(Hectares)

Country	Agricultural operations			Logging and forest operations (including prescribed burning)			Other industrial activities		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
Belgium	...	...	–	...	...	9	...	...	–
Croatia	444	450	839	...	...	...	...	...	...
Cyprus	18	–	7	–	–	–	–	–	–
Estonia	3	46	57	–	–	12	–	–	–
Germany	...	209	1	...	83	25	...	19	1
Ireland	170	350	362	–	–	–	–	4	1
Italy	1351	1836	3532	116	132	220	3	11	100
Lithuania	...	...	21	...	...	7	...	...	24
Poland	250	1238	201	23	8	19	–	–	–
Portugal	47	...	...	–	...	...	–	...	...
Romania	8	35	...	–	1	...	–	2	...
Slovenia	35	54	62	0	3	57	6	1	–
Spain	4259	7400	7445	333	798	615	2177	449	153
Switzerland	13	2	6	2	2	2	3	0	0
Turkey	–	–	–	–	–	–	–	–	–
Canada	34951	15988	90656	203555	9939	3000	9625	2028	4753

Country	Communications			General public			Other		
Belgium	...	...	–	...	...	32	...	...	2
Croatia	...	...	...	...	...	...	1200	3044	5500
Cyprus	–	–	–	1	–	39	30	3	–
Estonia	1	17	35	27	1085	358	8	19	10
Germany	...	111	12	...	156	383	...	1325	129
Ireland	–	–	–	125	72	32	–	–	–
Italy	3	11	372	209	343	522	2787	5437	9629
Lithuania	...	...	6	...	...	169	...	...	6
Moldova	–	–	–	20	22	2	–	–	–
Netherlands	–	– ...		31	35 ...		62	48 ...	
Poland	71	14811	117	691	4351	818	12	143	49
Portugal	1	...	...	–	...	...	5922	...	...
Romania	–	–	...	16	70	...	2	5	...
Slovenia	223	63	650	11	4	12	199	8	30
Spain	2176	671	1663	4256	3035	6260	9572	10439	9777
Switzerland	2	1	6	21	20	13	0	0	1
Turkey	36	16	–	601	533	1009	2186	2389	4567
Canada	1017	14260	943	16733	99594	2405	37202	6590	64163

Table 12

Losses a/

(National currencies)

Country	Currency		Total value			Wood and other tangible losses			Other		
			1991	1992	1993	1991	1992	1993	1991	1992	1993
Belarus	1000	B. ROUBLE	99	206649	76464	6	68294	10846	93	138355	65618
Belgium	1000	FRANCS	1637	1261	1348	...	...	...	...	...	...
Bulgaria	1000000	LEVA	4642	18617	143204	...	...	...	...	...	...
Croatia b/	1000	D. MARK	5093	12492	22618	463	1136	2056	4630	11356	20562
Cyprus	1000	POUND	...	...	...	5	3	52	...	...	...
Czech Rep	1000	KORUNA	5100	31500	45500	...	...	...	...	...	...
Denmark	1000	D. KRONER	...	...	...	...	...	...	...	5000	...
Estonia c/	1000	US DOLLARS	12	338	57	5	160	23	7	179	34
Germany	1000	D. MARK	3300	24638	10635	...	24537	10515	...	101	120
Ireland	1000	POUND	298	231	146	298	231	146	–	–	–
Italy	1000000	LIRE	61892	78100	179479	28717	32101	111449	33175	45999	68030
Lithuania	1000	LITA	...	710	184	...	...	76	...	...	108
Moldova	1000	LEU	1	1	...	1	1	...	0	0	...
Netherlands	1000	GUILDERS	...	...	...	32	10	...	...	...	...
Norway	1000	N. KRONER	2267	7257	534	...	...	...	...	...	...
Poland	1000000	ZIOTY	50970	1386200	101100	50970	1386200	101100	–	–	–
Romania	1000	LEI	2688	13942	...	2688	13942	...	–	–	...
Russian Federation	1000000	ROUBLE	96	21	3979	31	7	...	65	14	...
Slovenia	1000	TOLAR	9748	9815	76805	6567	2620	32172	3181	7195	44633
Spain	1000000	PESETAS	19850	8917	8077	19359	8074	7555	491	843	522
Turkey	1000000	LIRA	33762	64942	224378	33762	64942	224378	...	...	...
Ukraine	1000	KRB	945	32643	6038615	183	5976	79743	762	26667	5958872

a/ See general notes and explanations of methodologies of estimating losses
b/ Croatia: data reported in DM
c/ Estonia: data reported in US Dollars

Table 13

Losses a/

(1000 US Dollars) b/

Country	Total value			Wood and other tangible losses			Other		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
Belarus c/	99	206649	76464	6	68294	10846	93	138355	65618
Belgium	52	38	37	...	...	...	...	...	...
Bulgaria, (million) c/	4642	18617	143204	...	...	...	...	...	...
Croatia	3360	7740	13105	305	704	1191	3054	7036	11913
Cyprus	...	...	...	5	3	52	...	...	...
Czech Rep c/	5100	31500	45500	...	...	...	...	...	...
Denmark	...	...	...	...	...	...	...	803	...
Estonia	12	338	57	5	160	23	7	179	34
Germany	2177	15265	6162	...	15203	6092	...	101	120
Ireland	522	376	206	522	376	206	–	–	–
Italy	53768	53097	105328	24947	21824	65404	28820	31273	39924
Lithuania c/	...	710	184	...	...	76	...	...	108
Moldova c/	1	1	–	1	1	–	0	0	–
Netherlands	...	...	...	18	6	...	...	...	...
Norway	379	1048	71	...	...	...	...	...	...
Poland, (million) c/	50970	1386200	101100	50970	1386200	101100	–	–	–
Romania	14	30	...	14	30	...	–	–	...
Russian Fed., (million) c/	96	21	3979	31	7	...	65	14	...
Slovenia	100	101	619	68	27	259	33	74	360
Spain	205300	77794	56795	200221	70440	53124	5078	7355	3671
Turkey	6646	7583	15504	6646	7583	15504	...	...	...
Ukraine c/	566	32643	6038615	183	5976	79743	762	26667	5958872

a/ See general notes and explanations of methodologies of estimating losses

b/ The data in table 12 was converted in US Dollars using the exchange rates published in "Monthly Bulletin of Statistics", United Nations, New York

c/ No exchange rate available, value in national currency, 1000 units

Table 14

Losses (wood volume)

(1000 m3 overbark)

Country	Volume of non recoverable wood								
	Total			Sawlog–size			Other		
	1991	1992	1993	1991	1992	1993	1991	1992	1993
Croatia	35	86	156	1	2	3	34	85	153
Cyprus	...	...	...	1	0	4	...	...	...
Estonia	1	52	7	0	30	2	1	22	5
Germany	...	166	80	...	78	73	...	89	7
Ireland	6	9	3	–	...	0	6	...	2
Italy	772	1062	2441	...	...	...	...	...	...
Lithuania	...	26	4	...	...	2	...	...	2
Moldova	0	0	–	...	...	...	0	0	–
Norway	10	40	...	5	20	...	5	20	...
Russian Federation	99986	111397	122592	...	...	...	...	...	...
Slovenia	3	1	13	2	1	5	1	1	7
Turkey	108	278	1154	91	227	1105	17	51	49
Ukraine	38	78	174	...	...	...	...	...	...

Table 15

Expenditures on prevention and control a/

(National currencies)

Country		Currency	Total			Forest service			Other (public and private)		
			1991	1992	1993	1991	1992	1993	1991	1992	1993
Albania b/	1000	US DOLLARS	...	...	...	10	15	20	...	...	...
Austria	1000	SCHILLINGS	889	1165	11020	889	1165	11020	–	–	–
Belarus	1000	B. ROUBLE	81377	1062186	13099733	...	...	...	...	...	...
Bulgaria	1000000	LEVA	4228	8547	19994	4228	8547	19994	...	...	...
Croatia c/	1000	D. MARK	3488	8746	8327	2388	7246	6327	1100	1500	2000
Cyprus	1000	POUND	...	...	...	705	769	869	...	...	...
Denmark	1000	D. KRONER	...	...	...	530	700	...	...	...	...
Estonia b/	1000	US DOLLARS	260	320	809	210	240	794	50	80	15
Finland	1000	MARKKAA	315	2844	–	...	...	...	...	...	...
Germany	1000	D. MARK	...	6	7	...	6	7	...	0	0
Ireland	1000	POUND	216	279	189	187	258	167	28	21	21
Italy	1000000	LIRE	49000	46000	63400	49000	46000	63400	...	...	...
Lithuania	1000	LITA	340	2430	4152	340	2430	4152	...	...	...
Moldova	1000	LEU	6823	59408	572	6200	54300	518	623	5108	54
Netherlands	1000	GUILDERS	...	...	...	409	375	...	...	...	...
Norway	1000	N. KRONER	5500	20000	...	...	...	...	...	...	...
Poland	1000000	ZIOTY	66235	1420940	225869	66235	1420940	225869	–	–	–
Portugal	1000000	ESCUDOS	535	500	690	535	500	690	...	...	...
Romania	1000	LEI	34200	61600	...	34200	61600	...	–	–	...
Russian Federation	1000000	ROUBLE	37	578	5952	...	...	...	...	...	...
Slovenia	1000	TOLAR	10158	12116	18476	8258	11516	17876	1900	600	600
Spain	1000000	PESETAS	...	...	–	10006	6287	...	...	...	...
Turkey	1000000	LIRA	199000	417000	965000	199000	417000	965000	...	...	...
Ukraine	1000	KRB	102	2101	48882	79	1680	37808	23	421	11074
United Kingdom	1000	POUND	670	419	350	670	419	350	...	...	...
Canada	1000000	C. DOLLARS	381	278	275	381	278	275	...	...	...

a/ See general notes and explanations of methodologies of estimating losses
b/ Albania and Estonia: data reported in US Dollars
c/ Croatia: data reported in Deutsche Marks

Table 16

Expenditures on prevention and control a/

(1000 US Dollars) b/

Country	Total			Forest service			Other (public and private)		
	1991	*1992*	*1993*	*1991*	*1992*	*1993*	*1991*	*1992*	*1993*
Albania c/	...	...	...	10	15	20	...	...	...
Austria	83	103	908	83	103	908	–	–	–
Belarus d/	81377	1062186	13059733	...	...	...	...	...	...
Bulgaria, (million) d/	4228	8547	19994	4228	8547	19994	...	...	...
Croatia e/	2301	5419	4824	1575	4489	3665	726	929	1159
Cyprus	...	...	...	1607	1591	1671	...	...	...
Denmark	...	...	...	90	112	...	...	...	...
Estonia c/	260	320	809	210	240	794	50	80	15
Finland	76	542	...	...	...	...	...	...	...
Germany	...	3713	4228	...	3660	4030	...	53	198
Ireland	378	454	266	328	420	236	49	34	30
Italy	42568	31273	37207	42568	31273	37207	...	...	...
Lithuania d/	340	2430	4152	340	2430	4152	...	...	...
Moldova d/	6823	59408	572	6200	54300	518	623	5108	54
Netherlands	...	...	...	239	207	...	...	...	...
Norway	921	2889	...	...	...	...	...	...	...
Poland, (million) d/	66235	1420940	225869	66235	1420940	225869	–	–	–
Portugal	3987	3407	3902	3987	3407	3902	...	...	...
Romania	181	134	...	181	134	...	–	–	...
Russian Fed., (million) d/	37	578	5952	...	...	...	...	...	...
Slovenia	105	125	149	85	119	144	20	6	5
Spain	...	...	...	103488	54849	...	...	...	...
Turkey	39174	48690	66678	39174	48690	66678	...	...	...
Ukraine d/	102	2101	48882	79	1680	37808	23	421	11074
United Kingdom	1252	634	519	1252	634	519	...	...	...
Canada	330	218	208	330	218	208	...	...	...

a/ See general notes and explanations of methodologies of estimating losses

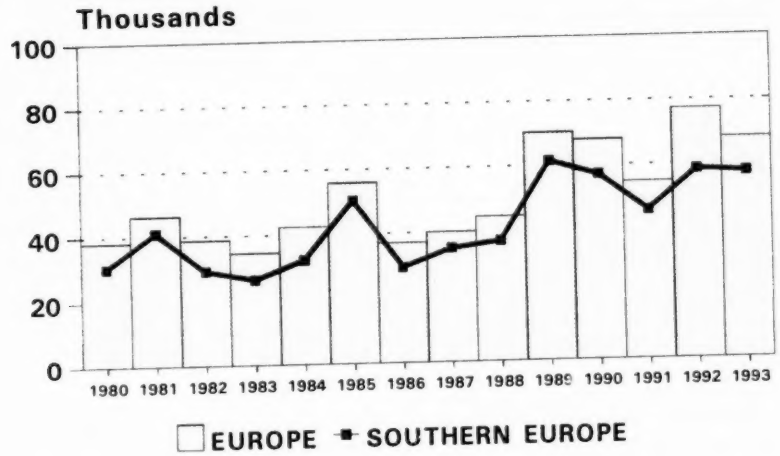
b/ The data in table 15 was converted in US Dollars using the exchange rates published in "Monthly Bulletin of Statistics", United Nations, New York

c/ Albania and Estonia: data reported in US Dollars

d/ No exchange rate available, data in national currencies, 1000 units

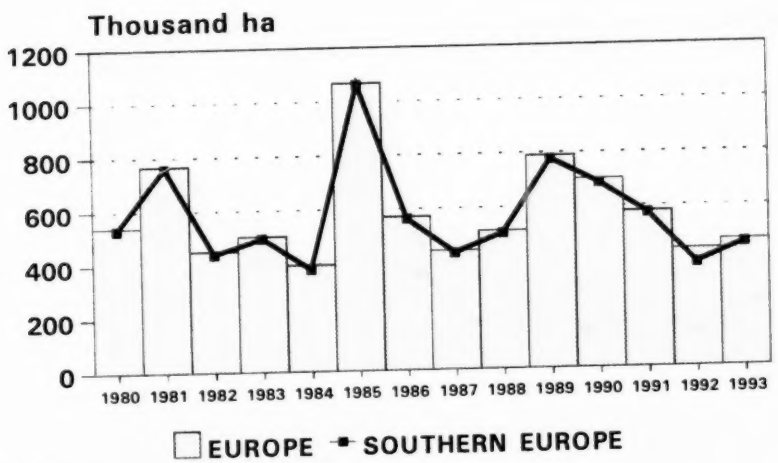
e/ Croatia: data reported in Deutsche Marks

Europe
Number of fires



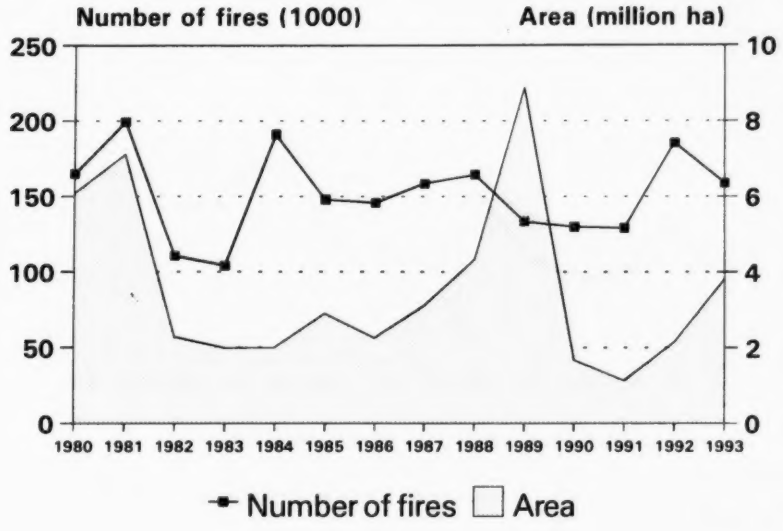
Southern Europe:
Albania, Croatia, Cyprus, France, Greece, Israel, Italy, Portugal, Slovenia, Spain, Turkey and former Yougoslavia

Europe
Area of fires

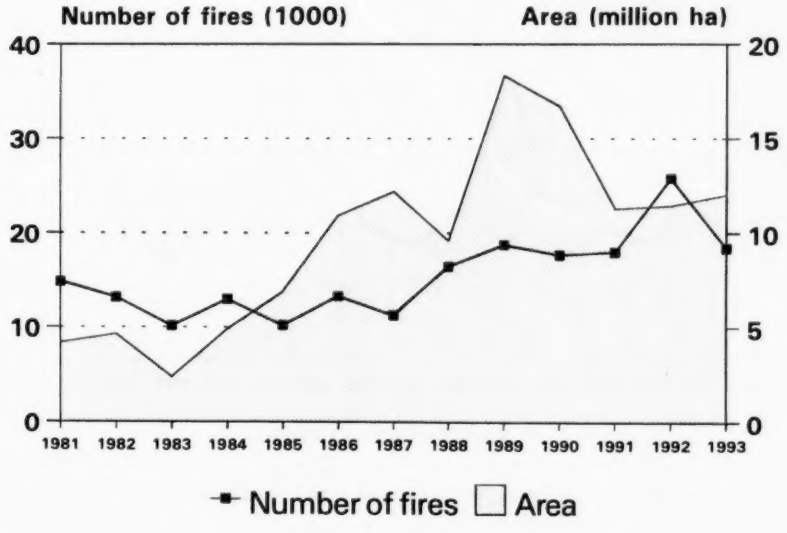


Southern Europe:
Albania, Croatia, Cyprus, France, Greece, Israel, Italy, Portugal, Slovenia, Spain, Turkey and former Yougoslavia

North America
Number and area of fires



Russian Federation
Number and area of fires



NOTES TO TABLES 12-14: LOSSES FROM FIRES

Countries were asked to describe the method employed in evaluating the losses caused by fires, which are shown in tables 12 (national currencies) and 13 (converted into US dollars). The information provided is summarized below:

Belgium:

The following are taken into account: the loss of the future value of burned trees, or of those trees whose normal growth has been disturbed by fire.

Bulgaria:

The following are taken into account: the value of wood volume destroyed or damaged; the value of young stands destroyed or damaged; and re-establishment costs including: site preparation, cost of plants and cost of planting, plus cost of maintenance and clearing during a period of four years.

Canada:

The determination of volume of non-recoverable wood is not available at the national level. The estimation of the monetary value of wood losses on a national basis has been discontinued due to the wide discrepancy among provincial and territorial fire management agencies in forest fire loss appraisal practices. The development of a standard national economic appraisal system for Canada has been a priority for many years. A suitable system has yet to be developed.

Croatia:

Method used for estimating forest fire damage:

The estimated value of wood losses is based on the percent share of the wood categories of the forests burned (e.g. logs x%, pulpwood x%, fuelwood x%), and the market value of these products. To calculate the social value of the forests, which is multiple times greater than the value of the wood mass, the coefficient 10 is used. The total damage is the result of summing together the value of the wood mass and the social value.

Cyprus:

For merchantable stands: commercial value is estimated; for immature stands: the cost of re-establishment is estimated.

Estonia:

Forest fire losses include destroyed and damaged wood, extinguishing expenses, cleaning expenditures and establishment costs for new stands.

Germany:

(1) Estimate of the stand expectation value less the stumpage value plus consequent costs caused by fire (additional planting costs et.) as well as other material damage

(2) Other damage is estimated according to a material value method (Koch) or other comparable cost estimating method.

Ireland:

The procedure adopted was to calculate both the value foregone and the potential value of the site. The difference between these two values is the financial loss incurred. The Net Discounted Revenue (NDR) technique has been used to calculate these values.

The Value Foregone is a combination of the NDR of the plantation assuming that it was not burned and its successor crop. The potential Value is the NDR of reforesting the burned site as well as the successor crop. In both instances the successor crop is *Sitka spruce*.

Italy:

The losses of non-recoverable wood are estimated according to the commercial value of the standing timber or the felled timber, whichever it applies, at the time of the fire.

Moldova:

The estimation of losses is carried out according to taxes for standing timber, degree of damage and volume of recoverable wood. Other expenses are taken into account such as extinguishing and cleaning costs.

Netherlands:

The sums paid by the insurance companies are taken into account for the estimation of losses.

Norway:

For wood and other tangible losses: includes damage to the productive forest; the value of damage to timber; and in young stands the cost of replanting. The discounting of future values of pre-commercial stands and non-tangible losses is not included; For other losses: includes damage to unproductive forest, non-forest land and other damage (buildings, equipment, etc.) caused by fires on forest and other land. The sums paid by the insurance companies Skogbrand are given.

Poland:

Difference between commercial value of the stand at the time of maturity and the costs of establishment. Methods also used to estimate losses of partly destroyed stands and of special stands (seed stands, reserved forest, experimental forest).

Romania:

The method used to evaluate losses is based on establishment costs and timber value.

Russian Federation:

For young stands, losses are estimated by discounting their future value. For mature stands, the methodology used is based on the forest inventory (standing volume per hectare, average diameter of trees, area burned, type and intensity of fire, etc.). Losses refer to non-recoverable wood as a percentage of the total standing volume.

Spain:

Tangible losses: costs of conservation and reforestation of immature stands; plus depreciation of burned timber; plus loss of potential value according to theoretical growth curves. Other losses: cost of restoring soil protection cover; plus income loss from recreational use; plus cost of imports to substitute burned timber; plus fire suppression costs. The following estimated environmental losses are not included in the tables:

1991	1992	1993
	(Million Pesetas)	
62.77	21.87	19.81

Turkey:

Standing volumes are recorded in the management plans according to species and location. Losses are estimated by calculating the difference between the values given in the management plans and the estimated timber value of stands before the fire.

Ukraine:

Losses from forest fire damage are calculated according to regulations of the Forest Law. These include: for wood losses, the value is calculated according to taxes applicable in a given region; for felled timber losses, the value takes into account price of timber less the fire damage and the felling, skidding and stocking costs; for buildings and equipment, according to their accounting value less a damage percentage. The total value comprises forest regeneration operations and costs of cleaning operations.

United Kingdom:

For the Forestry Commission only the losses due to fire, for years ending on 31 March were as follows:

1991/92	1992/93	1993/94
	(Thousand Pounds)	
139	114	104

These losses are calculated by accountants as adjustments to the "book value" of the Forestry Commission's estate.

NOTES TO TABLES 15 AND 16: EXPENDITURES ON FIRE PREVENTION AND CONTROL

Countries were invited to provide information on the coverage of their statistics on expenditures and this is summarized below:

Albania:

The expenditures refer to those of the Forest Service for forest fire surveillance, suppression and the elimination of consequences.

Austria:

Expenditure refer to forest fire prevention and control costs reimbursed to the local communities by the Federal Ministry of Agriculture and Forestry.

Belarus:

The breakdown for air and ground protection expenditure is the following:

(Thousand B. Roubles)	1991	1992	1993
Air surveillance	10517.5	155485	1703734
Ground surveillance	24.9.5	47970	407053
Total	68420.7	858731	10988946

Canada:

The breakdown of Provincial and Territorial Forest Services fire control expenditures is the following:

(Million Can. Dollars)	1991	1992	1993
Budgeted costs	198.030	137.761	159.816
Fire fighting costs	182.887	139.783	114.956
Total	380.917	277.554	274.772

Monetary figures for other public and private expenditures for fire prevention and control are not available. However, these figures would be a small percentage of the Provincial and Territorial Forest Service expenditures.

Cyprus:

Breakdown of expenditures of Forest Service:

(C. Pounds)	1991	1992	1993
Fire fighting	4 381	1 562	11 810
Fire look-out stations	174 052	198 880	227 329
Fire fighting task force	458 589	502 258	555 962
Construction of tracks for vehicles, water tanks, fire traces, etc.	68 393	65 893	74 046
Total	705 415	768 593	869 147

Estonia:

Forest Service expenditures refer to operations performed by airplanes, helicopters and other surveillance costs.

Finland:

Expenditures cover surveillance (tower and air observation) costs only.

Italy:

Covers fire suppression and equipment by the State Forest Service.

Moldova:

Expenditure on prevention and control comprises expenses such as cleaning and extinguishing costs.

The Netherlands:

Only the expenditures on forest fire prevention and control in State forests are known (labour, and small equipment). All fire control is done by regional fire services, which have no separate budget for the different type of fire suppression.

Norway:

Only expenditure on prevention are shown in tables 15 and 16.

Poland:

Data relate only to recurrent and occasional expenditure. Data on capital expenditure (investments) for forest fire prevention and control are not included.

Romania:

Expenditures include information costs, surveillance costs (fire look-out stations) and fire fire fighting equipment and material.

Russian Federation:

Expenditures include aircraft and land surveillance costs, forest fire prevention publications and campaigns and actual fire-fighting.

Spain:

Expenditure includes the following investments in airplane equipment:

	1991	1992
(Million Pesetas)		
	3252	633

Ukraine:

Expenditures on prevention and control include worker's wages and fire brigade's costs, expenses for aircraft and other machines and equipment, costs of chemicals for fire control and other miscellaneous costs.

United Kingdom:

The information on expenditure on forest fire prevention and control refers to Forestry Commission and Northern Ireland Forest Service woodlands (less than 40% of total). Figures are for years ending on 31 March.

DEFINITIONS USED IN THE ENQUIRY

Except that for "other land" the definitions are taken from the FAO/ECE Forest Resource Assessment 1990.

Forest and other wooded land
Land under natural or planted stands of trees, whether productive or not. Includes land from which forest has been cleared but that will be reforested in the foreseeable future. It includes areas occupied by roads, small cleared tracts and other small open areas within the forest which constitute an integral part of the forest.

Forest
Land with tree crown cover (stand density) of more than about 20% of the area. Continuous forest with trees usually growing to more than about 7 m in height and able to produce wood. This includes both closed forest formations where trees of various storeys and undergrowth cover a high proportion of the ground and open forest formations with a continuous grass layer in which tree synusia cover at least 10% of the ground.

High forest
Forest normally composed of trees of seedling origin. Included are other kinds of forest in process of transformation into high forest.

Coniferous
All trees classified botanically as Gymnospermae. These are sometimes referred to as softwoods.

Broadleaved (non-coniferous)
All trees classified botanically as Angiospermae. These are sometimes referred to as non-coniferous or hardwoods.

Coppice and coppice with standards
Forest composed of stool-shoots or root suckers with or without scattered trees of seedling origin (standards).

Other wooded land
Land which has some forestry characteristics but is not forest as defined above. It includes: |open woodland and scrub, shrub and brushland (see below), whether or not used for pasture or range. It excludes land occupied by "trees outside the forest"

Open woodland: Land with tree crown cover (stand density) of about 5-20% of the area.

Scrub, shrub and brushland: Land with scrub, shrub or stunted trees where the main woody elements are shrubs (usually more than 50 cm and less than 7 m in height), covering more than about 20% of the area, not primarily used for agricultural or other non-forestry purposes, such as grazing of domestic animals.

Ownership status

Public
Forest and other wooded land belonging to State and other public bodies.
- State: Forest and other wooded land owned by national, state, and regional governments or by government-owned corporations; Crown forests;

- Other public: Forest and other wooded land area belonging to towns, villages and communes. Includes any other publicly owned forest and other wooded land not elsewhere specified.

Private
Forest and other wooded land which is:
(a) owned by private forest (wood-processing) industries;
(b) owned by private corporations and institutions (religious, educational, pension funds, etc.);
(c) farm forest: owned by individuals, families or corporations engaged in agriculture as well as forestry;
(d) other: privately owned not elsewhere specified.

Other land
Land which, although not falling within the definition of "forest and other wooded land" has nonetheless been included in national forest fire statistics. Such land may include heathland, waste land or agricultural land adjoining or enclosed by forest land.

SOME FACTS ABOUT THE TIMBER COMMITTEE

The Timber Committee is a principal subsidiary body of the ECE (UN Economic Commission for Europe) based in Geneva. It constitutes a forum for cooperation and consultation between member countries on forestry, forest industry and forest product matters. All countries of Europe; the former USSR; United States of America, Canada and Israel are members of the ECE and participate in its work.

The ECE Timber Committee shall, within the context of sustainable development, provide member countries with the information and services needed for policy- and decision-making regarding their forest and forest industry sector ("the sector"), including the trade and use of forest products and, when appropriate, formulate recommendations addressed to member Governments and interested organizations. To this end, it shall:

1. With the active participation of member countries, undertake short-, medium- and long-term analyses of developments in, and having an impact on, the sector, including those offering possibilities for the facilitation of international trade and for enhancing the protection of the environment;

2. In support of these analyses, collect, store and disseminate statistics relating to the sector, and carry out activities to improve their quality and comparability;

3. Provide the framework for cooperation e.g. by organizing seminars, workshops and *ad hoc* meetings and setting up time-limited *ad hoc* groups, for the exchange of economic, environmental and technical information between governments and other institutions of member countries that is needed for the development and implementation of policies leading to the sustainable development of the sector and to the protection of the environment in their respective countries;

4. Carry out tasks identified by the UN-ECE or the Timber Committee as being of priority, including the facilitation of subregional cooperation and activities in support of the economies in transition of central and eastern Europe and of the countries of the region that are developing from an economic point of view;

5. It should also keep under review its structure and priorities and cooperate with other international and intergovernmental organizations active in the sector, and in particular with the FAO (Food and Agriculture Organisation) and its European Forestry Commission and with the ILO (International Labour Organisation), in order to ensure complimentarily and to avoid duplication, thereby optimizing the use of resources.

More information about the Committee's work may be obtained by writing to:

Timber Section
UN-ECE/FAO Agriculture and Timber Division
Palais des Nations
CH-1211 Geneva 10, Switzerland
Fax: 41 22 917 0041

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*Timber Bulletin Volume XLVIII (1995) . . . . . ECE/TIM/BULL/48/...
(Six issues per year)
1. Forest Products Prices
2. Forest Products Statistics
3. Forest Products Annual Market Review
4. Forest Fire Statistics
5. Forest Products Trade Flow Data
6. Forest Products Markets in (current year) and Prospects for (forthcoming year)

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- Forest and Forest Products Country Profile: Belarus ECE/TIM/SP/5
- (Country profiles also exist on Albania, Bulgaria, former Czech and Slovak Federal Republic, Estonia, Hungary, Lithuania, Poland, Romania, Slovenia)
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